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Edited by Etienne Turpin + Valeria Federighi
Images Lisa Hirmer

2. A NEW ELEMENT, A NEW FORCE, A NEW INPUT: ANTONIO STOPPANI'S ANTHROPOZOIC¹

Lisa Hirmer, *Untitled*, from *Sudbury Slag*, 2012



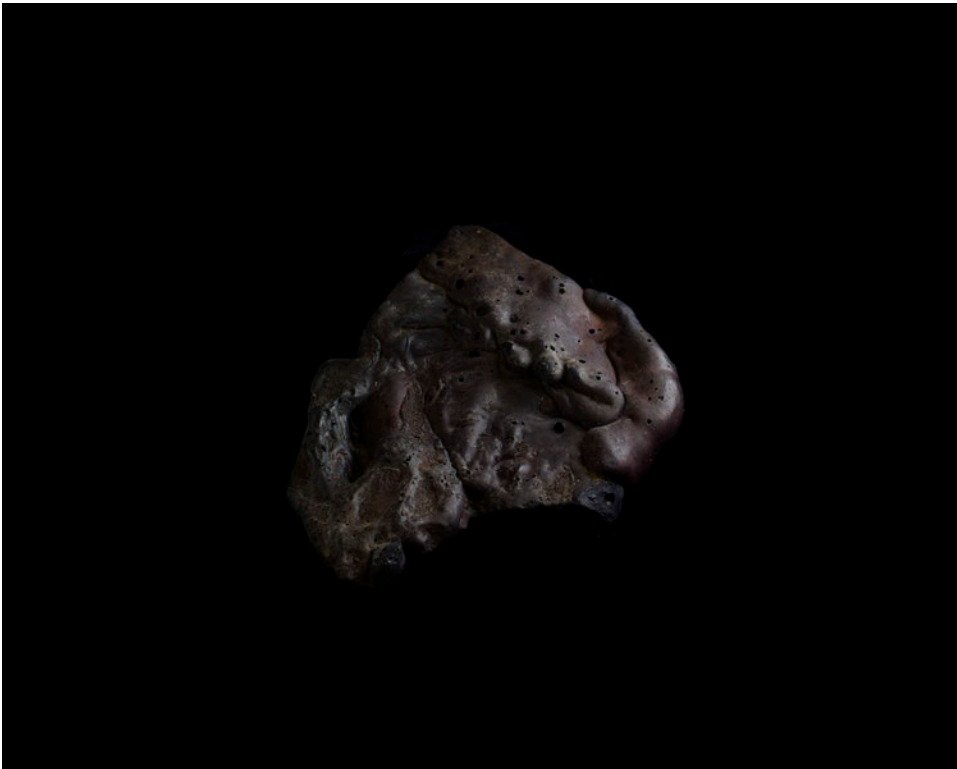
INTRODUCTION

The Italian geologist Antonio Stoppani is a remarkable but little known figure in the history of science and the theoretical humanities. Recently, following debates about the Anthropocene initiated by the Dutch chemist Paul Crutzen, some scholars have returned to Stoppani's writing for its eloquent argument regarding the appearance of human activity in the archive of deep time—the earth. Born in Lecco in 1824, the young Stoppani studied to become a priest of the order of the Rosminiani, and was ordained in 1848. In the same year, Stoppani participated in the resistance during the Cinque giornate di Milano (Siege of Milan), where he both fought on the barricades and, fantastically, invented and fabricated aerostats that were used to communicate with the periphery and the provinces, sending revolutionary messages to the countryside from inside a barricaded Milano. In this endeavor, he was helped by the typographer Vincenzo Guglielmini, who worked with Stoppani to ensure that the aerostat balloons would travel from the Seminario Maggiore di Porta Orientale over the walls erected around the city (and the Austrians trying to shoot them from the sky) to encourage Italians to revolt against the Austrian Empire.

1 Excerpts from Antonio Stoppani, *Corso di Geologia*, trans. Valeria Federighi, ed. Valeria Federighi and Etienne Turpin (Milano: G. Bernardoni, E. G. Brigola, Editori, 1873). Photographs by Lisa Hirmer.

Following this siege, Stoppani also participated in subsequent confrontations, but after the Battle of Novara he returned to the seminary as a grammar teacher. This return was short-lived, however, because Stoppani's patriotic past and political ideas remained unwelcome by the Church. Following his expulsion from the seminary, he began to study geology. And, while his religious conviction is clear and consistent in his writings on geology, it is for his advances in understanding terrestrial affairs, not theological dogma, that he is best remembered. Notably, after the liberation of Milan, Stoppani's merits were acknowledged and his old titles reinstated. In 1867, he was appointed Professor of Geology at the Politecnico di Milano, where he also helped to found the Museum of Geology, and acted as president of the Geological Society. An experienced alpinist, in 1874 Stoppani became the first president of the Milan section of CAI (Club Alpino Italiano).

In the late 1880s, Stoppani would return to confront his theological roots, publishing *Gli intransigent*—a book critical of the Catholic Church and its resistance to political and social change—which prompted attacks from *L'Osservatore Romano*. Later, in his ethnographic study of the various places and populations that inhabited the recently unified Italian territory, *Il bel paese*, Stoppani would wonder at the diversity of tellurian physical expression: "Italy is almost—I don't stammer in saying this—the synthesis of the physical world." The excerpt below, translated from Stoppani's three-volume *Corso di Geologia* of 1873, is an example of his breadth of knowledge, courageous imagination, and compelling but accessible rhetorical inventiveness. Nearly thirteen decades before Crutzen's coinage of the Anthropocene, in this text we find an untimely assessment of the human relation to deep time; perhaps, in the wake of these more recent debates, we finally have ears to hear him.



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FIRST PERIOD OF THE ANTHROPOZOIC ERA

by Antonio Stoppani, translated by Valeria Federeighi,
edited by Etienne Turpin + Valeria Federeighi
Images Lisa Hirmer

I recall with pleasure the event that we believe opened the vulgar era. When was it (more for a necessity as felt by the universe, than for a convention accepted by historians of all nations) that we began to count years anew, and we established the two eras, in which we partition universal history? This happened when in the world resounded the great Word; when, in the bosom of the aged fabric of ancient pagan societies, the Christian ferment was introduced, the new element *par excellence*, that substituted ancient slavery with freedom, darkness with light, fall and degeneration with rebirth and true progress of humanity.

It is in this sense, precisely, that I do not hesitate in proclaiming the Anthropozoic era. The creation of man constitutes the introduction into nature of a new element with a strength by no means known to ancient worlds. And, mind this, that I am talking about physical worlds, since geology is the history of the planet and not, indeed, of intellect and morality. But the new being installed on the old planet, the new being that not only, like the ancient inhabitants of the globe, unites the inorganic and the organic world, but with a new and quite mysterious marriage unites physical nature to intellectual principle; this creature, absolutely new in itself, is, to the physical world, a new element, a new telluric force that for its strength and universality does not pale in the face of the greatest forces of the globe.

Lisa Hirmer, *Untitled*, from *Sudbury Slag*, 2012



Geology, too, feels thrust onto a new path, feels that its most powerful means, its surest criteria, fail: it becomes, too, a new science. Already the Neozoic era forced it to walk very dif-

ferently than how it had walked when it only narrated the most ancient events. The science of ancient seas was already destined to become the science of new continents. But even this road cannot lead geology to its destination. It is not enough to consider earth under the impetus of telluric forces anymore: a new force reigns here; ancient nature distorts itself, almost flees under the heel of this new nature. We are only at the beginning of the new era; still, how deep is man's footprint on earth already! Man has been in possession of it for only a short time; yet, how many geological phenomena may we inquire regarding their causes not in telluric agents, atmosphere, waters, animals, but instead in man's intellect, in his intruding and powerful will. How many events already bear the trace of this absolute dominion that man received from God when, still innocent, first heard those words: *Be fruitful and multiply, fill up the earth and subdue it; and rule over the fish of the sea, the bird of the sky and every living thing that moves on the earth, and when, guilty, he heard said: You will earn your bread with your sweat?*

To understand how deep the changes brought about on the globe by this new element are, and how new, consequently, the criteria that guide science should be, it should suffice to make a comparison between so called virgin lands (if there are still any that deserve that name) and those that have been cultivated for centuries. Let us look at Europe, where man has pushed his dominion most forward and where, although recent, his footprints are the deepest.

If his power could do nothing against the strength of the winds, which lead seawaters into the fields that he farms, nonetheless he extends his dominion over the waters themselves as soon as they sprout from the cumuli that wonder in the atmosphere. From the humble brook, that springs from cliff to cliff, to the river that widens its mouth as it debouches into the sea, all flowing waters, oblivious of ancient laws, beat the path that man has traced for them. The old alluvial expanses, already beaten by them with whirling winding, and drowned by their overflowing floods, subtracted by force to their capricious domain, are converted into



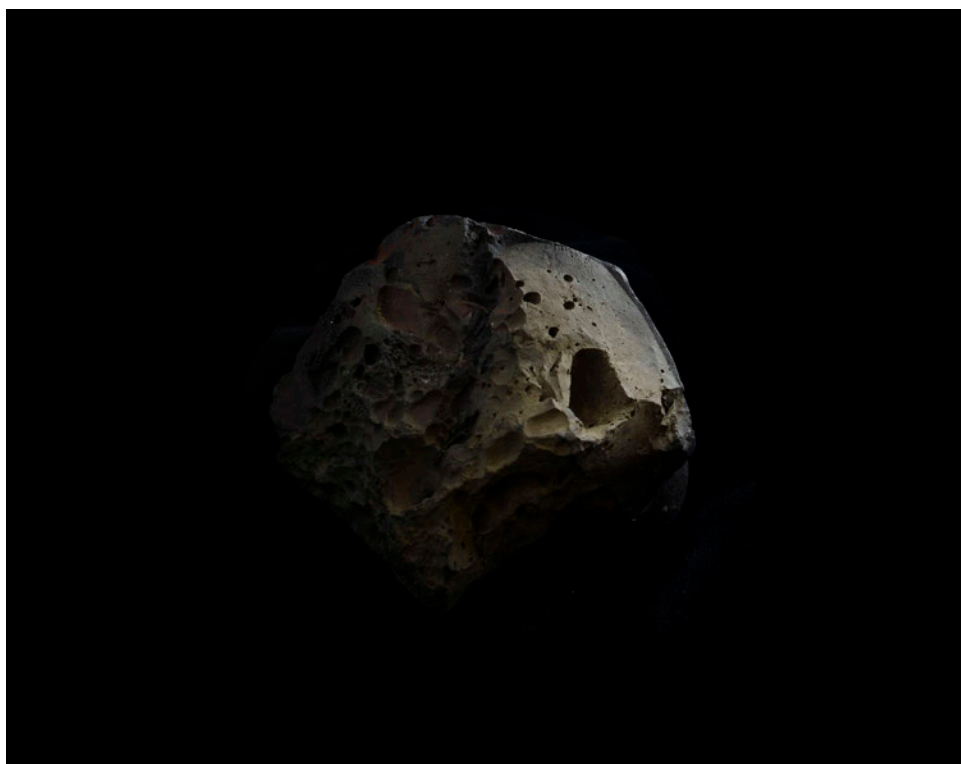
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greening meadows and fertile fields, periodically mowed by their new owner. Where natural valleys truncate, artificial valleys begin that man traced, guiding gigantic banks along lines as long as are those dug by the slow labor of centuries; and if a river, in the end, finds anew the bosom of the ancient sea, it will be through a different mouth. Waters are not safe, even when they flow furtive underground. Man chases them, catches them, then fountains and rivers, to which man imposes the name of wells, quench the flock's thirst and irrigate the desert. At the same time he severs springs to the exuberant superficial waters, and disperses them into his cisterns.

Already there are new mountains where old valleys used to be: already the irregular soil is drawn into wide plains where waters extend into a thin veil. Already the impenetrable Alps have heard the chisel and the mine resonate in their bosom, and nations have kept a lookout in order to brotherly shake hands. Everywhere, the bosom of the ancient Mother discloses, and the shadows, broken by vagrant splendors, resign to man treasures that were hidden by centuries. At times you can see this Prometheus awaken fire from the bowels of the earth, and guide it to his furnace. Rival of the potent agents of the internal world, man undoes what nature has done. Nature has worked for centuries at agglomerating in the bowels of the earth oxides and metallic salts; and man, tearing them out of the earth, reduces them to native metals in the heat of his furnaces. In vain you would look for a single atom of native iron in the earth: already its surface is enclosed, one could say, within a web of iron, while iron cities are born from man's yards and float on the sea. How much of the earth's surface by now disappears under the masses that man built as his abode, his pleasure and his defense, on plains, on hills, on the seashores and lakeshores, as on the highest peaks! By now the ancient earth disappears under the relics of man or of his industry. You can already count a series of strata, where you can read the history of human generations, as before you could read in the amassed bottom of the seas the history of ancient faunas. To the archeolithic strata, where human relics appear as buried among cut firestones and bones of disappeared animals, terramare superimpose, and pile dwellings, this is where the progress of human race is testified by bronze forged into exquisite weapons and tools. Yet we have not come to see the soil imprinted upon by Etruscan art; and to find ourselves on our own, we have to cross the immense stratum that carries the mark of Roman genius. The rivers, almost oblivious to old granite and porphyry pebbles, learned how to roll pottery and crockery. In the end, approximately 300 million are the men that work, bent and sweaty, from morning until night, on the soil of this small parch of the earth's surface that is called Europe. England, where human industry is the most fervent, crumbles and caves in, everywhere eaten through by insatiable coal, rock salt, limestone and metal miners. What will happen, when Europe will all be worked through as England, and the whole world as Europe? Furthermore, man's influence is not limited to dry land. The very sea cannot escape his dominion. It recedes already, pushed back by obtrusive dams, and by pumps, and by joints, that steal from it arms and lagoons and swamps to make fields. Neither is its immensity of any help in dividing land from islands, islands from continents, as thousands and thousands of ships have opened the way through which nations can embrace, and lands exchange products of the three kingdoms in mutual tribute. Even the unexplored depths of the ocean were forced to act as intercessor, in order to put in contact the peoples of the two worlds. And man invades the atmosphere as well, and not content to only pour, as animals do, the products of his respiration into it, he also pours vast amounts of the products of his industry, gases from his fires and his grandiose laboratories. A century, or just a year, since a family of men settles onto virgin soil, and everything is changed, everything breathes with the strength of human intelligence.

So man dominates over inorganic matter and over forces that alone had governed him for

innumerable centuries; but his yoke does not spare the other, nobler, kingdoms. The iron law that his sin brought upon him made man essentially, though other diverse names, a farmer. Here he razes woods; there he covers bare lands with woods; wood is turned into tools; logs into poles; deserts become meadows; squalid moors, verdant fields; nude hills, vineyards and gardens. Greens are not allowed to grow haphazardly any longer, nor to agglomerate into messy and nameless groups. Arranged in rows, seeded in beds, grouped in woods that take their names from the essence that man planted there, cut, pruned, tormented in innumerable guises, fed by artificial heats and waters, they testify everywhere that man has taken full control of that kingdom which God has allocated him for food and shelter. Neither, under his irresistible strength, have plants only submitted to a regime that nature had not imposed; but, oblivious to their own primitive nature, bowing to forced matrimony, new species are simulated under the horrific mask of hybridism while others lie with the flowers and fruits that grafting created. Botanists can only look into the furthest depths, into mountains' fissures, on the highest peaks, for the untamed daughters of virgin nature, that carry unaltered the features of their mother.



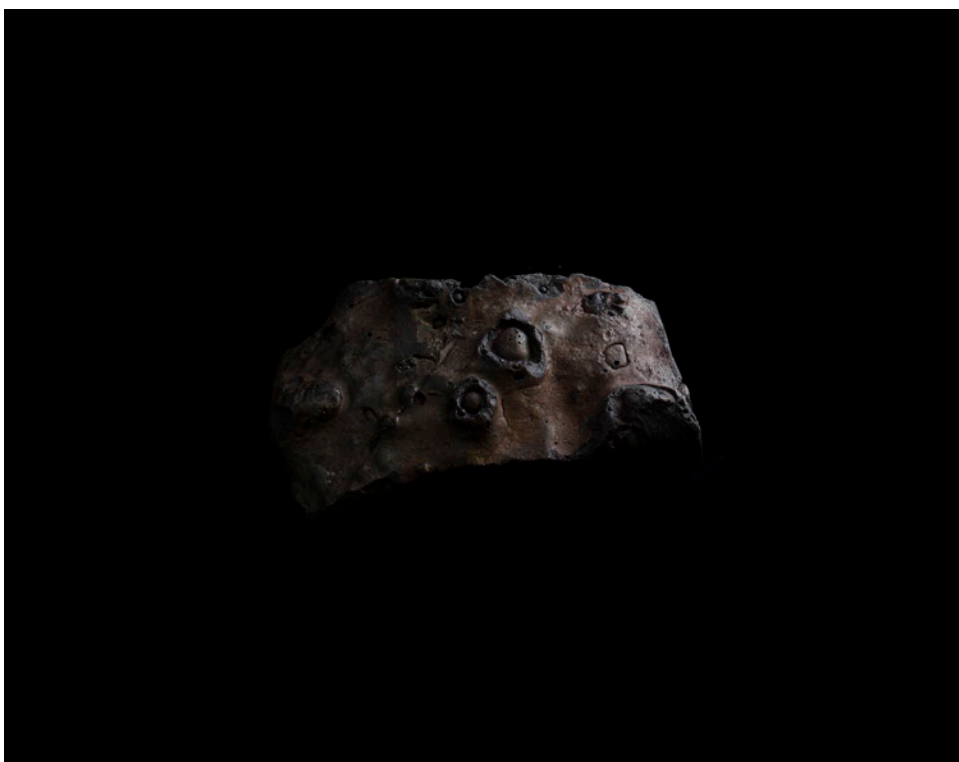
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We are talking about European man, because Europe, more than other regions, feels man's sovereignty. Home to ancient civilizations, occupied by powerful nations, by men used to multiply time through the zeal of labor, it felt more than others the deep footprint of the earth's lord. But the ancient civilizations of Asia and Africa preceded the ancient civilizations of Europe. The civilizations of Peru and Mexico get lost in the mist of time. Europe, as by regurgitations, flows now over the lands from which its own people originated, and over those, which our fathers didn't know the existence of. For a long time now this wave of people goes, comes, returns, bumps, overlaps as sea waves on the surface of land. Let us not forget, then, that man

has been, since his incipit, cosmopolitan. Unlike speechless animals that preceded him on the surface of the planet, he knows no geographical confine, he makes no distinction of zone or of climate; rivers, seas, valleys and mountain crests are no obstacle to him. As he has been wandering for centuries, naked, through the arenas of the boundless desert; so, covered in skins torn from mild and ferocious animals, for centuries he has been driving his sled on the horrid labyrinth of polar ices that reflect the meek glow of the northern lights. But European man already cast his eye on the heart of the desert to make an oasis for himself, and is about to drive his banner on the North Pole, that same banner that already waves on the highest Alpine peaks. A day will come, when the earth will be but a seal of man's power, and man a seal of God's, who, giving man his own image, almost gave him a portion of his own creative will.

A new era has then begun with man. Let us admit, though eccentric it might be, the supposition that a strange intelligence should come to study the Earth in a day when human progeny, such as populated ancient worlds, has disappeared completely. Could he study our epoch's geology on the basis of which the splendid edifice of gone worlds' science was built? Could he, from the pattern of floods, from the distribution of animals and plants, from the traces left by the free forces of nature, deduct the true, natural conditions of the world? Maybe he could; but always and only by putting in all his calculations this new element, human spirit. At this condition, as we, for instance, explain the mounds of terrestrial animals' bones in the deep of the sea, he, too, could explain the mounds of sea shells that savage prehistoric men built on the coasts that they inhabited. But if current geology, to understand finished epochs, has to study nature irrespective of man, future geology, to understand our own epoch, should study man irrespective of nature. So that future geologist, wishing to study our epoch's geology, would end up narrating the history of human intelligence. That is why I believe the epoch of man should be given dignity of a separate new era.

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Geologists should not be reluctant in accepting this foundation for the only reason of the brevity of time currently encompassed by it. The Anthropozoic era has begun: geologists cannot predict its end at all. When we say Anthropozoic, we do not look to the handful of centuries that have been, but to those that will be. Nothing makes us suspect that Adam's seed might be close to extinguishing; for humanity is too young if compared to that ideal of perfect civilization of which mankind's first-born has planted the seed, surely not in vain. But as contained as the number of centuries God is willing to concede to the triumph of intelligence and love may be, the earth will never escape the hands of man if not thoroughly and deeply carved by his prints. The first trace of man marks the beginning of the Anthropozoic era. ■



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